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MODIFYING FORESTRY CURRICULA TO FIT FUTURE NEEDS

by

Steven E. Jungst

Three things would be made infinitely simpler if I knew exactly what forestry education of the future should involve. The first would be the task of deciding what the curriculum here at ISU should contain. The second would be the writing of this article, and the third would be making a living. I would simply go on the road with the answers since I am sure there are a lot of schools of forestry around the country that would pay dearly for information from an all knowing forestry curriculum designer. The painful truth is, however, that I don't know exactly what a forestry education of the future should involve. Curriculum design, like most things in life is couched in probabilities rather than certainties. What follows is not a road map for developing the perfect curriculum to meet future needs, but rather a checklist of some things that must be considered along the way.

Although I don't know the first thing about repairing car engines, I have the feeling it would be much easier to design a curriculum to train mechanics than it is to design a curriculum for foresters. There seem to me to be three major differences in make up of the respective curricula. First, it is fairly easy to decide what a mechanic needs to know to repair car engines, and regardless of where that person may choose to work after they have completed their education, their expertise requirements are the same. Contrast that with any forestry student you wish, who may go to work for any one of a number of agencies in countless locations around the United States or in foreign countries. Some of the basics of what that person needs to know are the same regardless of where he or she may decide to work, but the particulars can be staggeringly different. Second, trainers of car mechanics can get some pretty sound information from designers about the kind of car engines that will be coming out in the next year or two, and curricula can be adjusted accordingly. Changes in forestry, while they don't occur as frequently as



changes in car engines, are more difficult to anticipate accurately. Third, it seems to be accepted practice for mechanics to attend short courses to catch up on new developments. We have been doing this to some extent in forestry, but not as well as we should be.

Now let's complicate matters a little more. Those of you who have been involved in Forestry Service planning have at least heard about linear programming, even though you may not have gotten directly involved. Simply stated, the process involves trying to maximize a set of benefits without violating a number of constraints. Curriculum planning in forestry is a lot like that. Our goal, as stated in the departmental goals and objectives, is to "provide quality undergraduate education". I suppose all forestry schools have a similar goal, since I can't imagine any reason why a school would set out to provide a substandard education. One might think of quality undergraduate education as the benefit which we are trying to maximize. Now for the constraints. At ISU, we must do that with 135 semester credits. The Ag. College says that at least 11.5 of those hours must be in communications, 13 must be in mathematics and physical sciences, 6 must be in biological sciences, 6 in social sciences, and 6 in humanities. Now suppose we want to maintain our accredited status with the Society of American Foresters (I think it would be a major blunder for us to lose our accreditation). The accreditation standards say we must have course work in communications, science and mathematics, social sciences and humanities,

forest biology, measurement of forest resources, management of forest resources, and forest resource policy and administration. Fortunately, there are areas of overlap in the various requirements, but it serves to point up that changes in curriculum must be evaluated by several different yardsticks.

If you were to conduct a survey of forestry graduates to determine what a curriculum should contain, you would get a dazzling array of answers most of which are based on what the particular individual was most recently embarrassed about not knowing. While that kind of survey sometimes turns up some good ideas, it's more of a help in "catching up" than it is in "planning ahead". You would probably be pleasantly surprised to find out that most people surveyed don't complain that they didn't get enough silviculture, or enough mensuration, or any of the other knowledge areas that are obviously forestry. More often, they will indicate that they wish they had improved their business management skills or had learned more about computers, or communications, or some other skill which is important in career development, but which is not unique to the field of forestry. At least that seems to indicate that the forestry courses that are being taught are doing an adequate job of teaching things that are uniquely forestry. It may also indicate that we need somehow to insure that forestry is taught in such a way that it addresses more of those aspects which are not uniquely forestry, but which are important to career development.

As society changes, the needs of society change, and that sometimes impacts on forestry. Over the years, many "hot new areas" in forestry have come into vogue, and few have remained, while many have disappeared again. The current areas in the forefront seem to be urban forestry and international forestry, and, I suspect, they are two that will be with us for a long time. Large forestry departments in good economic times can react rapidly and substantially to such new areas by redirecting resources within the department, or by hiring new faculty members. For small departments operating in difficult economic times, it is considerably more difficult to react either rapidly or substantially since we have no faculty members that can be called on to redirect major portions of their time, nor is it likely that we will be able to hire new

faculty members unless vacancies occur in the existing faculty. Consequently, about the best we can hope for is that we might add a course in the new area, and if it is still in prominence when and if a vacancy occurs, hire a new faculty member to work in that area.

None of what has been said so far prevents a forestry department such as the one at ISU from making changes and offering students an excellent opportunity for an up-to-date education. It simply means that changes need to be well thought out so we are certain that we make the best use of the resources available to us, something that sounds a lot like what forestry is all about in the first place.

It is doubtful that we can accurately predict what the needs of entry level students will be 30, 20, or even 10 years from now, but we must continue to try, and adapt as rapidly as possible to changes that occur. Since we can't anticipate needs very far into the future, and prepare all students for all possible jobs they might hold during their career, there do seem to be three things which we must try diligently to achieve when ever we modify our curriculum. First, we must incorporate coursework and teaching methods into the curriculum which strengthen students' abilities to think for themselves. That's a goal that is easy to talk about, easy to agree on, and very difficult to achieve. Somehow, regardless of what we teach, we must insure that students know the material, can use their own powers of reason to see applications for the material, and have the confidence to apply their knowledge to the solution of new problems. Second, we must teach students how to learn on their own. It's not all that difficult to learn when an instructor decides what is important, sorts through the most current information on the subject, organizes it, and presents it to the student. But what happens when the instructor is no longer around to do that for the student? If, in the process of getting a college education, the student has learned how to use his or her own resources to sort through new information, digest it, and come up with new solutions, that person will stand a much better chance on the job than someone who does not possess that skill. Finally, we must somehow instill in each student, the desire to continue to learn. A college education should never be thought of as the end of the learning process that started at childhood, but

rather as the beginning of what should be a lifetime of seeking out new skills and finding new answers.

I would be selling my profession short if I left you thinking that it isn't important to try to provide the most up-to-date information on forestry to aspiring foresters. It is vitally important that we try to achieve the best mix possible of communications, ethics, mathematics, forest biology, measurements, management skills and all the other things that make a well rounded forester. We must never lose sight of the fact, however, that regardless of how good the college education is, if a student can't think independently, can't learn independently, and doesn't possess the desire to continue to learn for a lifetime, within a few short years after graduation, that student will be hopelessly ill informed and will undoubtedly be passed by.

There will certainly be differences in the forestry education of the future, just as the current forestry education is different than that offered 20 years ago. For the most part, that difference will not come about as the result of one or two major overhauls of the curriculum. It will come about through constant fine tuning of the curriculum to insure that those foresters who graduate 20 years from now will be as well prepared to cope with forestry in the future as today's graduates are to cope with forestry of today.

